CLAIMS

1. An article, comprising:

an oral delivery composition, comprising a capsule comprising at least one of isolated uricase and isolated creatininase.

2. The article of claim 1, wherein the capsule further comprises isolated urease.

3. The article of claim 1, wherein the capsule comprises each of isolated uricase and isolated creatininase.

4. The article of claim 3, wherein the capsule comprises each of isolated uricase, isolated creatininase, and isolated urease.

5. The article of claim 1, wherein at least a portion of the capsule is not susceptible to acid degradation.

6. The article of claim 1, wherein the capsule, when ingested by a subject, does not substantially release the at least one of uricase and creatininase externally of the capsule.

7. The article of claim 1, wherein the capsule comprises alginate.

8. The article of claim 1, wherein the capsule does not substantially impede mass transport of at least one of urea, uric acid, and creatinine therethrough.

9. The article of claim 1, wherein the capsule comprises an enteric coating.

10. The article of claim 1, wherein the capsule comprises a cell.

11. The article of claim 10, wherein the cell comprises the at least one of uricase and creatininase.

12. The article of claim 10, wherein the capsule comprises *E. coli.*

13. The article of claim 10, wherein the cell is a transfected cell.

14. The article of claim 13, wherein the cell is transfected with urease gene.

15. The article of claim 13, wherein the cell is transfected with a uricase gene.

16. The article of claim 13, wherein the cell is transfected with a creatininase gene.

17. The article of claim 1, wherein the capsule is free of *E. coli.*

18. The article of claim 1, wherein the capsule comprises an ammonium uptake species.

19. The article of claim 18, wherein the ammonium uptake species is able to adsorb ammonium.

20. The article of claim 19, wherein the ammonium uptake species comprises a sorbent.

21. The article of claim 20, wherein the sorbent comprises at least one of zirconium phosphate, carbon, and oxystarch.

22. The article of claim 18, wherein the ammonia uptake species is able to react with ammonium.

23. The article of claim 22, wherein the ammonium uptake species comprises at least one enzyme able to react with ammonia.

24. The article of claim 23, wherein the at least one enzyme comprises glutamine synthetase.

25. The article of claim 1, wherein the oral delivery composition comprises a pharmaceutically acceptable carrier.

26. A method, comprising:

administering, to a subject, an oral delivery composition comprising at least one of uricase and creatininase.

27. The method of claim 26, wherein the subject is susceptible to or exhibits symptoms of a disease characterized by elevated levels of at least one non-protein nitrogen compound.

28. The method of claim 27, wherein the subject is susceptible to or exhibits symptoms of a disease characterized by elevated levels of more than one non-protein nitrogen compounds.

29. The method of claim 27, wherein the at least one non-protein nitrogen compound includes a uremic toxin.

30. The method of claim 29, wherein the disease is end stage renal disease.

31. The method of claim 29, wherein the disease is renal dysfunction.

32. The method of claim 26, wherein the subject has gout.

33. The method of claim 26, wherein the subject has been treated with chemotherapy.

34. The method of claim 26, further comprising administering dialysis to the subject.

35. The method of claim 34, wherein the dialysis is peritoneal dialysis.

36. The method of claim 35, when the peritoneal dialysis is continuous ambulatory peritoneal dialysis.

37. The method of claim 34, wherein the dialysis is hemodialysis.

38. The method of claim 34, comprising administering dialysis and administering the oral delivery composition simultaneously.

39. The method of claim 34, wherein administering dialysis and administering the oral delivery composition are not simultaneous.

40. An article, comprising:

an oral delivery composition, comprising a capsule comprising at least one cell transfected with at least one of a uricase gene and a creatininase gene.

41. The article of claim 40, wherein the at least one cell comprises at least a first cell transfected with a uricase gene and at least a second cell transfected with a creatininase gene.

42. The article of claim 40, wherein the at least one cell is transfected with both the uricase gene and the creatininase gene.

43. The article of claim 40, wherein the oral delivery composition further comprises at least one cell transfected with a urease gene.

44. The article of claim 40, wherein the at least one cell is further transfected with a urease gene.

45. The article of claim 40, wherein the capsule, when ingested by a subject, does not substantially release the at least one cell externally of the capsule.

46. The article of claim 40, wherein the oral delivery composition comprises an ammonium uptake species.

47. The article of claim 40, wherein the oral delivery composition comprises a pharmaceutically acceptable carrier.

48. The article of claim 40, when the oral delivery composition further comprises at least one of isolated urease, isolated uricase, and isolated creatininase.

49. A method, comprising:

administering, to a subject, an oral delivery composition comprising at least one cell transfected with at least one of a uricase gene and a creatininase gene.

50. The method of claim 49, further comprising administering dialysis to the subject.

51. An article, comprising:

an oral delivery composition, comprising a capsule comprising at least one cell designed to overexpress at least one of uricase and creatininase.

52. The article of claim 51, wherein the at least one cell comprises at least a first cell designed to overexpress uricase and at least a second cell designed to overexpress creatininase.

53. The article of claim 51, wherein the at least one cell designed to overexpress at least one of uricase and creatininase is transfected with at least one of a uricase gene and a creatininase gene.

54. The article of claim 51, wherein the at least one cell is designed to overexpress both uricase and creatininase.

55. The article of claim 51, wherein the oral delivery vehicle further comprises at least one cell designed to overexpress urease.

56. The article of claim 51, wherein the capsule, when ingested by a subject, does not substantially release the at least one cell externally of the capsule.

57. The article of claim 51, wherein the oral delivery composition comprises an ammonium uptake species.

58. The article of claim 51, wherein the oral delivery composition comprises a pharmaceutically acceptable carrier.

59. The article of claim 51, wherein the oral delivery composition further comprises at least one of isolated urease, isolated uricase, and isolated creatininase.

60. A method, comprising:

administering, to a subject, an oral delivery composition comprising at least one cell designed to overexpress at least one of uricase and creatininase.

61. The method of claim 60, further comprising administering dialysis to the subject.

62. An article, comprising:

an oral delivery composition, comprising a capsule comprising at least one cell transfected with at least one of a urease gene, a uricase gene, and a creatininase gene, wherein the at least one cell is not *E. coli*.

63. The article of claim 62, wherein the at least one cell comprises at least a first cell transfected with a uricase gene, at least a second cell transfected with a creatininase gene, and at least a third cell transfected with a urease gene.

64. The article of claim 62, wherein the at least one cell is transfected with at least two of the urease gene, the uricase gene, and the creatininase gene.

65. The article of claim 62, wherein the at least one cell is transfected with each of the uricase gene, the creatininase gene, and the urease gene.

66. The article of claim 62, wherein the capsule, when ingested by a subject, does not substantially release the at least one cell externally of the capsule.

67. The article of claim 62, wherein the oral delivery composition comprises an ammonium uptake species.

68. The article of claim 62, wherein the oral delivery composition comprises a pharmaceutically acceptable carrier.

69. The article of claim 62, wherein the oral delivery composition further comprises at least one of isolated urease, isolated uricase, and isolated creatininase.

70. A method, comprising:

administering, to a subject, an oral delivery composition comprising at least one cell transfected with at least one of a urease gene, a uricase gene, and a creatininase gene, wherein the at least one cell is not *E. coli*.

71. The method of claim 70, further comprising administering dialysis to the subject.

72. An article, comprising:

an oral delivery composition, comprising a capsule comprising at least one cell able to reduce a blood concentration of at least one non-protein nitrogen compound in a subject when the oral delivery composition is ingested by the subject, wherein the at least one cell is not *E. coli*.

73. The article of claim 72, wherein the at least one non-protein nitrogen compound includes a uremic toxin.

74. The article of claim 73, wherein the uremic toxin is urea.

75. The article of claim 73, wherein the uremic toxin is uric acid.

76. The article of claim 73, wherein the uremic toxin is creatinine.

77. The article of claim 72, wherein the capsule, when ingested by a subject, does not substantially release the at least one cell externally of the capsule.

78. The article of claim 72, wherein the oral delivery composition comprises an ammonium uptake species.

79. The article of claim 72, wherein the oral delivery composition comprises a pharmaceutically acceptable carrier.

80. The article of claim 72, wherein the oral delivery composition further comprises at least one of isolated urease, isolated uricase, and isolated creatininase.

81. A method, comprising:

administering, to a subject, an oral delivery composition comprising at least one cell able to reduce a blood concentration of at least one non-protein nitrogen compound in the subject when the oral delivery composition is ingested by the subject, wherein the at least one cell is not *E. coli.*

82. The method of 81, further comprising administering dialysis to the subject.

83. A method, comprising:

administering at least one of isolated uricase and isolated creatininase to an intestine of a subject.

84. The method of claim 83, comprising administering urease to the subject.

85. The method of claim 83, further comprising administering dialysis to the subject.

86. An article, comprising:

an oral delivery composition, comprising a capsule comprising at least two isolated uremic enzymes.

87. The article of claim 86, wherein the oral delivery composition comprises at least three isolated uremic enzymes.

88. The article of claim 86, wherein at least one of the isolated uremic enzymes is urease.

89. The article of claim 86, wherein at least one of the isolated uremic enzymes is uricase.

90. The article of claim 86, wherein at least one of the isolated uremic enzymes is creatininase.

91. The article of claim 86, wherein the capsule, when ingested by a subject, does not substantially release the at least two isolated uremic enzymes externally of the capsule.

92. The article of claim 86, wherein the oral delivery composition comprises an ammonium uptake species.

93. The article of claim 86, wherein the oral delivery composition comprises a pharmaceutically acceptable carrier.

94. The article of claim 86, wherein the oral delivery composition further comprises a cell.

95. The article of claim 94, wherein the cell is a transfected cell.

96. The article of claim 95, wherein the cell is transfected with at least one of a urease gene, a uricase gene, and a creatininase gene.

97. A method, comprising:

administering, to a subject, an oral delivery composition comprising at least two isolated uremic enzymes.

98. The method of claim 97, further comprising administering dialysis to the subject.